

HONEYCUTT ENGINEERING

16127 Spiveys Corner Hwy
Dunn, NC 28334
910-237-0734

Job: Cavco Home Center -- Harnett County

Sheet: 1 of 2

Calculated By: Jason M. Honeycutt

Date: 1/16/24

Sign Foundation Design For:

Location =	Harnett County	Height of Sign Face, ft =	6
Design Wind Velocity (V), mph =	120	Width of Sign Face, ft =	8
Height of Structure (Z), ft =	16	Height of Flashing Face, ft =	10
Kz =	0.42	Width of Flashing Face, ft =	2
Exposure =	B	Length of Pole, ft =	0
Structural Classification =	I	Width of Pole, ft =	0
Importance Factor (I) =	1	Area of Sign Face, ft ² =	48
Gust Response Factor (Gh & Gz) =	1.59	Area of Flashing Face, ft ² =	20
Geometry Force Coefficient (Cf) =		Area of Pole, ft ² =	0
Round = 0.75, Square/Rect = 1.2	1.2	Moment Arm of Sign Face, ft =	13
Max Allow. Stress, ksi =	23	Moment Arm of Flashing Face, ft =	5
Number of Poles =	1	Moment Arm of Pole, ft =	0

Determine Velocity Pressure:

$Qz = 0.00256 * Kz * (I * V)^2$ $Qz = 15.5$

Determine Wind Force:

$F = Qz * (Gh + Gz) * Cf * A$

Sign:	Fs =	1.42
Flashing:	Ff =	0.59
Pole:	Fp =	0.00
	Ftotal (kips) =	2.01

Moment Calculations:

$M = F * \text{Moment Arm}$

Sign:	Ms =	18.43
Flashing:	Mf =	2.95
Pole:	Mp =	0.00
	Mtotal (kips-ft)	21.39

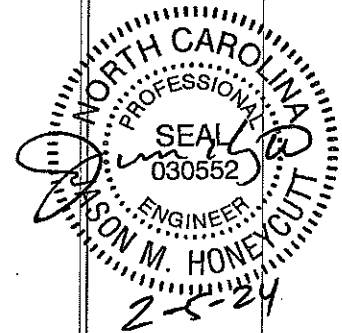
Section Requirement Calculation:

$Sreq = Mtotal / \text{max allowable stress}$ $Sreq (in^3) = 11.159$

Embedment Depth Required:

USE: 7" x 7" x 1/4" Steel Tubing

Force on Pole (P), lbs =	2009
Height Above Ground the Load Is Applied (H), ft =	10.65
Diameter of Foundation or Pole (B), ft =	2.5
Passive Soil Allowable Pressure (p), psi =	
Ranges from 100 - 400	400
Assumed depth (d), ft =	6.33
Soil pressure, (psi)	2000
Steel Specification:	A500 Grade B, 50 ksi
Concrete pressure, (psi)	3000
$Si = p * d / 3$	Si = 844.00
$A = 2.34 * P / (Si * B)$	A = 2.23
$d = (A / 2) * (1 + (1 + (4.36 * H / A)))^{0.5}$	d = 6.32



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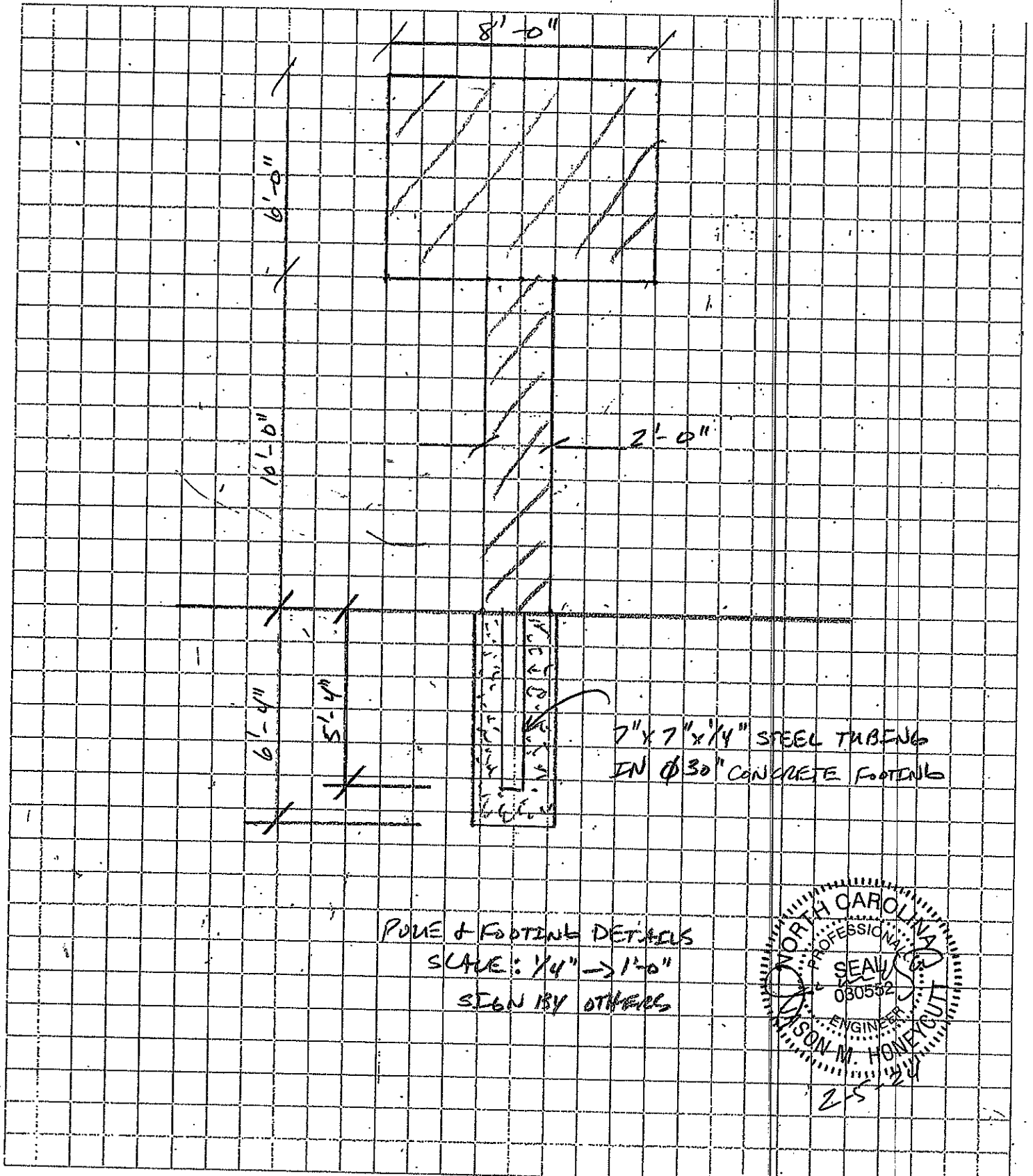
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POLE & FOOTING DETAILS
SCALE: 1/4" → 1'-0"
SIGN BY OTHERS

